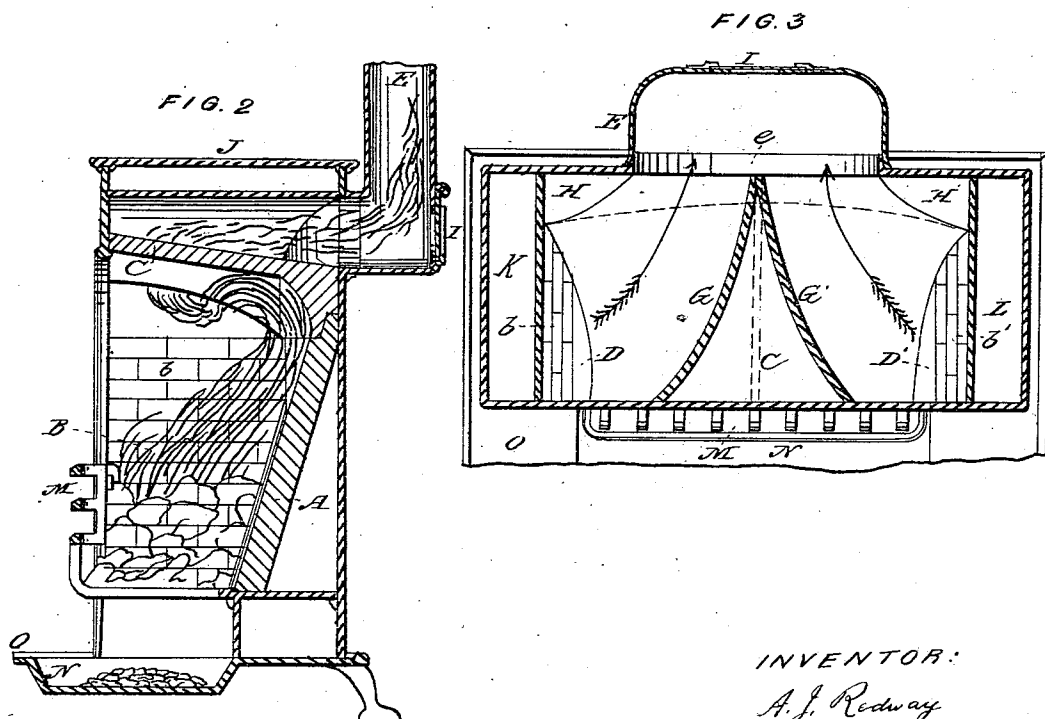
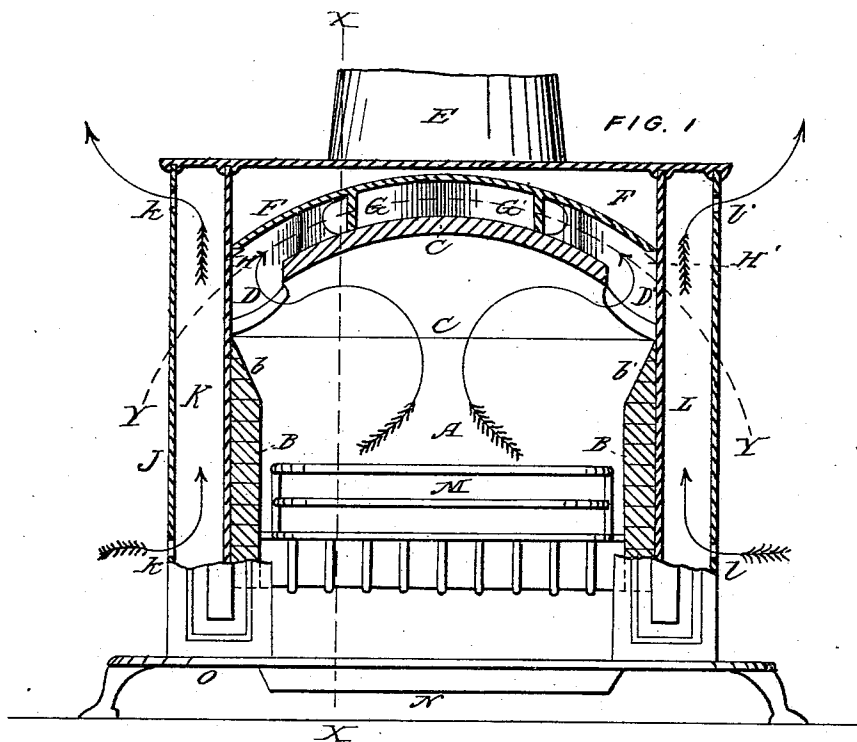


A. J. REDWAY.

Fireplace.

No. 64,446.

Patented May 7, 1867.



WITNESSES:

Gas. H. Layman
Samuel Knight

INVENTOR:

A. J. Redway
By Knight Bros
Attys

United States Patent Office.

ALBERT J. REDWAY, OF CINCINNATI, OHIO.

Letters Patent No. 64,446, dated May 7, 1867.

IMPROVEMENT IN FIRE-PLACES.

The Schedule referred to in these Letters Patent and making part of the same.

TO WHOM IT MAY CONCERN:

Be it known that I, ALBERT J. REDWAY, of Cincinnati, Hamilton county, Ohio, have invented certain new and useful Improvements in Open Stoves and Fire-Places; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification.

This invention consists in the provision of a peculiarly-shaped deflecting crown or canopy over the grate proper of an open stove or fire-place, the sides of said crown being provided with flues for the purpose of conducting the smoke, gas, and other products of combustion in two laterally diverging streams to the upper front corners of the fire-place, and thence above said crown, by two converging branches, to the chimney. In the accompanying drawings—

Figure 1 is a front elevation, partially in section, of an open stove embodying my improvements.

Figure 2 is a vertical cross-section taken at the line X X; and

Figure 3 is a section taken at the curved line Y Y.

The fire-back A may be concave in its horizontal section, as indicated by the dotted black line in fig. 3, and this back may be formed of tile, fire-brick, cast iron, or any other suitable material. The jambs B B' are constructed preferably of fire-brick or tile, and their upper portions *b b'* incline upward and outward from the centre of the fire-chamber so as to allow a free exit for the smoke, &c. Placed immediately over the fire-chamber is a slightly concave crown, canopy, or deflecting plate, C, of tile or cast iron, and that portion of the sides of this tile nearest to the front of the stove or fire-place is pierced with flues D D', whose area is preferably greater in front than in the rear. In order to conduct the smoke, &c., into the pipe E, I provide a concave plate, F, whose curvature is concentric with the crown C, and said plate F is furnished with two downwardly projecting curved flue strips G G'. These flue strips are some distance apart at the front of the stove, but they converge to a point as they approach the opening *e* of the smoke pipe E, and serve in connection with the abutments H H' to conduct the products of combustion from the flues D D' of the deflector into the smoke pipe E without eddies, (see red arrows in fig. 3.) A small door, I, may be provided in the smoke-pipe elbow to permit the removal of any soot, ashes, &c., which might collect on the upper surface of the crown C, and as this crown has a slight inclination toward the back of the stove, it greatly facilitates the cleaning of the flues. The fire-chamber may be contained within a shell or case, J, either of cast or sheet iron, and this case may be provided with chambers K L for heating air; the cold air entering at the apertures *k l*, and after its temperature has been raised, escaping at the apertures *k' l'*. M, N, and O represent respectively an ordinary basket, ash-pit, and hearth-plate.

The operation of the stove is clearly shown in fig. 2. It will be seen that the fire and smoke which emanate from the fuel contained in the basket M ascend, and as soon as these products of combustion come in contact with the crown C, they are deflected therefrom and immediately flow in two opposite and laterally diverging streams toward the side flues D D', up which they are carried, and thence into the converging passages formed between the curved plate F, top of the tile C, flue strips G G', and abutments H H'. After leaving these passages the smoke passes into the pipe E, and thence into the chimney.

Among the many advantages resulting from the use of the deflector C D D' and its accompanying devices, the following may be enumerated: This improvement, whether applied to a stove or grate, will effectually prevent any eddies of smoke, and will not impede the draught, and the arrangement is found remarkably free from the tendency so common with open fire-places to puff out smoke when a sudden gust of air enters, either from the front or back, a result believed to be due to the lateral direction given to the smoke on leaving the fire. The lateral direction of draught caused by the side flues D D' causes the entering air to take the currents in flank instead of in direct opposition, and thus avoid puffing out. This position of the flues also causes any deposition of soot to fall directly into the fire, instead of out into the room, as with other stoves and fire-places of this class. No gas, smoke, or other obnoxious vapors can escape into the room, as the greater portion of them is consumed under the crown, and what little smoke, &c., may remain is carried up through the side flues D D'. The draught produced by the side flues D D' serves to draw up the smoke and all of the light ashes, which are shaken through the basket in the act of stirring or poking the fire, thus removing a great objection to the use of open stoves and grates. The channels H G H' G' becoming intensely heated, create

and preserve a high degree of buoyancy, which, even should the fire slacken or become overloaded with fresh fuel, operates to maintain a very active draught. My crown can be applied to an ordinary grate, and to most of the open stoves now in use, and as my fire-chamber is not unusually deep, when measured from the front bars to the back of the chamber, it will be seen that the heat from the incandescent fuel is radiated directly into the room without being obstructed by a large body of coal.

I have selected, to illustrate my invention, the form preferred by me, as that which practical test has proved to be effective, but I do not desire to confine myself thereto so long as the same results are obtained by means substantially equivalent; for example, an inferior modification of my invention may have a single strip, (see red line C e,) in place of the curved pieces G G', and the intermediate plates F, K, and L may be dispensed with in some forms of stoves.

I claim herein as new, and of my invention—

1. Surmounting the fire-chamber of a grate or stove with the arched crown C, which extends from the front to the back of the fire-chamber, and is provided with the side flues D D', all arranged and operating in the manner herein described and set forth.

2. In combination with the crown C and side flues D D', I also claim the flue strips G G', abutments H H', for the purpose specified.

In testimony of which invention I hereunto set my hand.

ALBERT J. REDWAY.

Witnesses:

GEO. H. KNIGHT,
HOWARD DOUGLAS.